Arnaldoa
11(2): 21-28: 2004

A new unusual *Bomarea* species in northern Peru (Alstroemeriaceae)

ANTON HOFREITER
Ludwig-Maximilians-Universität, Department Biologie I, Bereich Biodiversitätsforschung, Abteilung Systematische Botanik, Menzingerstraße 67, D-80638 München, GERMANY, E-mail: hofreiter@freenet.de

ERIC F. RODRÍGUEZ RODRÍGUEZ
Herbarium Truxillense (HUT), Universidad Nacional de Trujillo, Jr. San Martín 392, Trujillo, PERÚ, E-mail: efrr@chanchan.unitru.edu.pe

Abstract

A new species of ***Bomarea*** subgenus ***Bomarea*** s.str. (Alstroemeriaceae), from Northern Peruvian Andean region (Amazonas, La Libertad and San Martin deparments) is described and illustrated: ***B. alstroemeroides*** Hofreiter & E. Rodr. The typical growth form and its variability, habitat preferences and distribution are discussed. The new species is easily recognised because of its large wide-open, clearly zygomorphic flowers. The shape of the flower appears similar to some ***Alstroemeria*** species. The species is endemic to the Amotape-Huancabamba-region. The new specie is compared to its next relatives.

Key words: ***Bomarea***, new species, Andes, Peru, distribution, Amotape-Huancabamba-region.

Resumen

Se describe e ilustra una nueva especie de ***Bomarea*** subgénero ***Bomarea*** s.str. (Alstroemeriaceae) procedente de la región Andina del Norte del Perú (departamentos de Amazonas, La Libertad y San Martín): ***B. alstroemeroides*** Hofreiter & E. Rodr. Se discute la forma típica del crecimiento y su variabilidad, así como las preferencias del hábitat y distribución. La nueva especie se reconoce fácilmente por sus flores grandes, muy abiertas y claramente zigomorfas. La forma de la flor es similar a ciertas especies

de ***Alstroemeria***. El nuevo taxón es endémico a la región de Amotape-Huancabamba. Se compara su relación con las especies mas afines.

Palabras clave: ***Bomarea***, nueva especie, Andes, Perú, distribución, región Amotape-Huancabamba.

Introduction

The Peruvian ***Bomarea*** species (Alstroemeriaceae) were revised for the last time by Killip (1936). The genus is divided into 4 subgenera: ***Baccata*** (3 species), ***Bomarea*** s.str. (ca.70), ***Sphaerine*** (12) and ***Wichuraea*** (18) (Hofreiter & Tillich 2002). In Peru no species of ***Baccata*** occurs. For the differences of the subgenera see the key. The subgenus ***Bomarea*** s.str. has it centre of distribution growing twining on the edges of fog forests, ***Sphaerine*** erect in the shadow of the fog forest and ***Wichuraea*** erect in open habitats in the jalca and puna. The subgenus ***Bomarea*** s.str. is subdivided in 5 informal groups by Harling & Neuendorf (2003). The new species fits in the Multiflora group. The colour and the shape of the tepals are very similar to the typical members of the group like ***B. formosissima*** or ***B. multiflora***, but the shape of the flowers is very different. The wide-open flowers are unique within the whole group and appear like ***Alstroemeria*** flowers. The other species of this group have all funnel shaped flowers and so far only hummingbirds have been observed at their flowers. The new species seems to be adapted to insect pollination. At least insects can easily reach the nectar.

Key to the new species:

1 ovary semi-inferior; plants twining or erect; flowers pendulous, actinomorphic; tepals retained at the ripe fruit; fruit dehiscent; Ecuador to Argentina..... ***Wichuraea***

1´ ovary inferior 2

2 fruit dehiscent, leathery; plants mostly twining; flowers pendulous and actinomorphic or horizontally orientated and zygomorphic; tepals mostly deciduous ***Bomarea*** s.str.) 3

2´ fruit indehiscent, fleshy; plants mostly erect; flowers erect and actinomorphic or horizontally orientated and zygomorphic; Colombia to Bolivia ..... ***Sphaerine***

3 inflorescence a thyrse ..... Goniocaulon group, Pardina group, Salsilla group, Edulis group and various other species

3´ inflorescence an umbel; Mexico to Bolivia, American cordillera 4

4 flowers without a green tip 5
4´ flowers with a green tip ..... ***B. rosea*** and various other species

5 flowers funnel shaped ..... all other species of the Multiflora group
5´ flowers wide-open ..... ***B. alstroemeroides***

Clave para la nueva especie:

1 ovario semi-ínfero; plantas volubles (enredadera) o erectas; flores péndulas, actinomorfas; tépalos persistentes en el fruto maduro; fruto dehiscente; Ecuador hasta Argentina ***Wichuraea***
1´ ovario ínfero 2

2 fruto dehiscente, coriáceo; plantas mayormente volubles (enredadera); flores péndulas y actinomorfas u horizontalmente orientadas y zigomorfas; tépalos mayormente deciduos (***Bomarea*** s.str.) 3
2´ fruto indehiscente, carnoso; plantas mayormente erectas; flores erectas y actinomorfas u horizontalmente orientadas y zigomorfas; Colombia a Bolivia ..... ***Sphaerine***

3 inflorescencia un tirso ..... grupo Goniocaulon, grupo Pardina, grupo Salsilla, grupo Edulis y varias otras especies
3´ inflorescencia una umbela; México a Bolivia, cordillera Americana 4

4 flores sin ápice verde 5
4´ flores con ápice verde ..... ***B. rosea*** y varias otras especies

5 flores infundibuliformes todas las otras especies del grupo Multiflora
5´ flores muy abiertas ..... ***B. alstroemeroides***

Bomarea alstroemeroides Hofreiter & E. Rodr. spec. nov.

TYPE: Peru, Dept. Amazonas, Prov. Chachapoyas: Dist. Leymebamba, near the Laguna de Los Condores, primary forest, 2550-2600 m, 31.01.1999, **Eric Rodríguez et al. 2167a** (holotype: HUT!).

Fig. 1A; 2 C; distribution and habitat Fig. 1B, C.

Inter speciebus affinibus insignis caule spiraliter scandete, glabro, foliis linearibus at anguste ovatis longe attenuatis, glabris, umbella +- patule, floribus zygomorphis, segmentis perianthii rotatis, aequalibus, sepalis oblongis, rubris, petalis spathulato-unguiculatis, rubris rubro punctatis. Fructus turbinati, pilosi.

Plant twining, up to 4 m long, stem robust, up to 0.5 cm in diameter, not recurved at apex, pubescent with increasing density towards the top, or glabrous. **Leaves** linear or linear-lanceolate, 2 – 8 x 0.2 – 0.8 cm. Both leaf surfaces glabrous. **Inflorescence** an umbel, pedicels 2 – 4 cm, pubescent. Subtending leaves of the lower-most flowers bracteose, 0.5 – 1 x 0.1 – 0.2 cm, subsequent bracts smaller. Flowers zygomorphic, horizontally oriented, wide open, ca 3 – 4 cm in diameter, inner tepals equalling outer ones, 2-3 cm long, outer tepals oblong, outer surface red, paler red on inner surface. Inner tepals subdivided in blade and claw, orange with a red stroke at outer side and with many dark spots. Ovary pubescent, **fruit** turbinate and **seeds** globose.

Additional specimen examined:

PERU. Dept. Amazonas: Prov. Chachapoyas, Balsas road to Leymebamba, 3559 m, 19.10.2000, **Weigend et al. 2000/863** (HUT, MSB); Prov. Chachapoyas, Balsas road to Leymebamba, 3300 m, 5.01.1979, **Dillon & Turner 1747** (F). Entre Leymebamba y Balsas, 2900 m, 01.06.1963, **López et al. 4415** (HUT). Dept. La Libertad, Prov. Bolivar, east of Bolivar, ca. 3400 m, **Hofreiter s.n.** (MSB). Dept. San Martin: Prov. Huallaga, Dist. Saposoa, Entre El Tambo y Jalca del Rayo, camino a Leymebamba, 2800-3200 m, 15.09.2000, **Quipuscoa et al. 2485** (HAO, HUSA)

Note: ***B. alstroemeroides*** is so far known only from a small area and even there it seems to be rare. In contrast to most other species of the Multiflora group it do not occur in large population, but dispersed. The next relatives are maybe ***B. multiflora*** from Ecuador and Colombia and ***B. formosissima*** from southern Peru and northern Bolivia. The shape of the flower can distinguish the new species, but the shape of the tepals and the colour of the flowers are very similar to ***B. formosissima***. (Fig. 2 A-E)

Distribution and ecology: The new species grows in the Amotape-Huancabamba-region from the Abra de Calla Calla to the mountains east of Bolivar on the windward sides in small shrubs and fog forests at altitudes between 2500 m and 3600 m (Fig. 1B, C). This new taxa is associate with other species who define their own phytogeographic zone (e.g. ***Nasa*** spp., ***Passiflora*** spp., ***Ribes*** spp. and other species of ***Bomarea***) and prefers humid black soil with abundant organic matter.

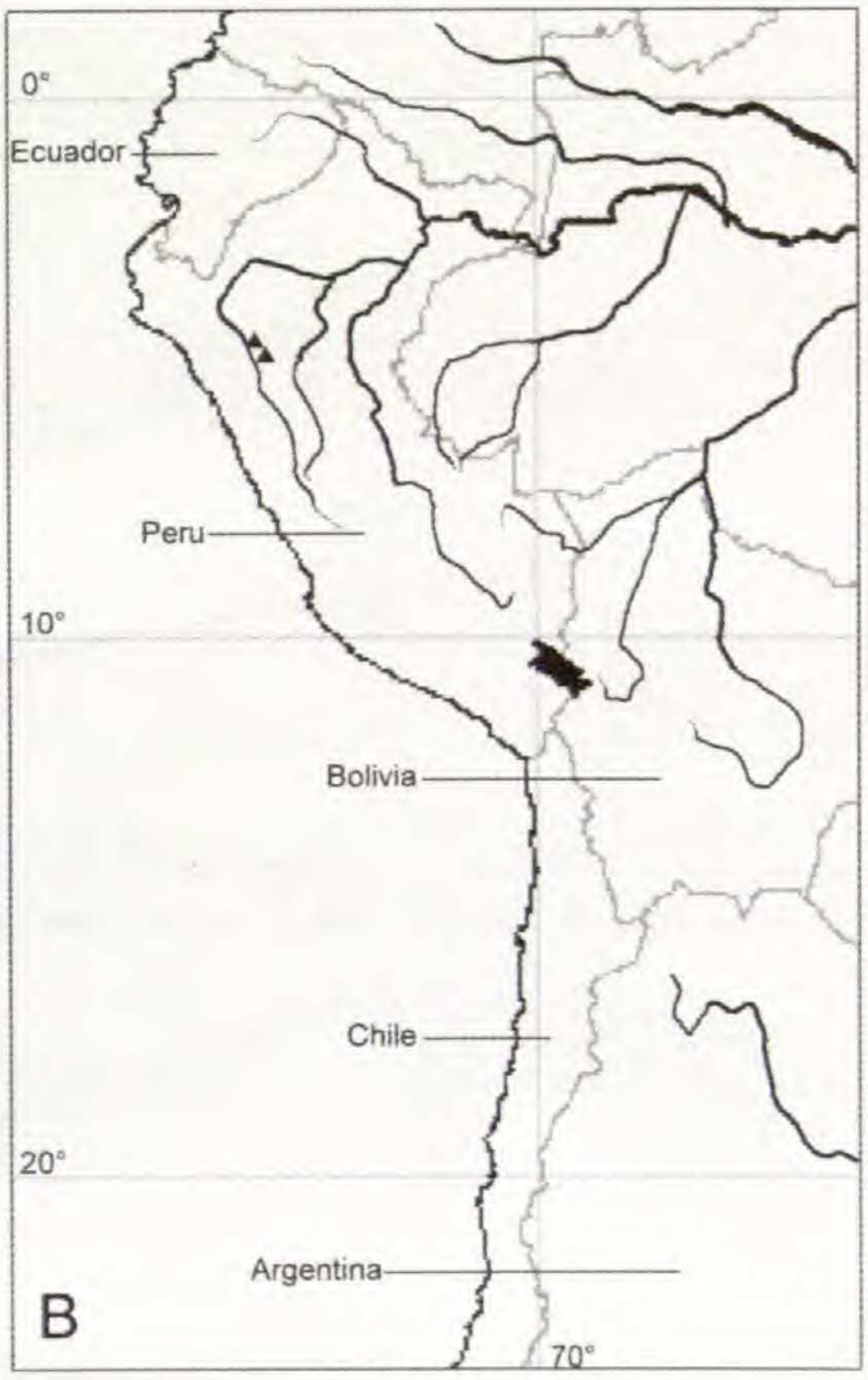
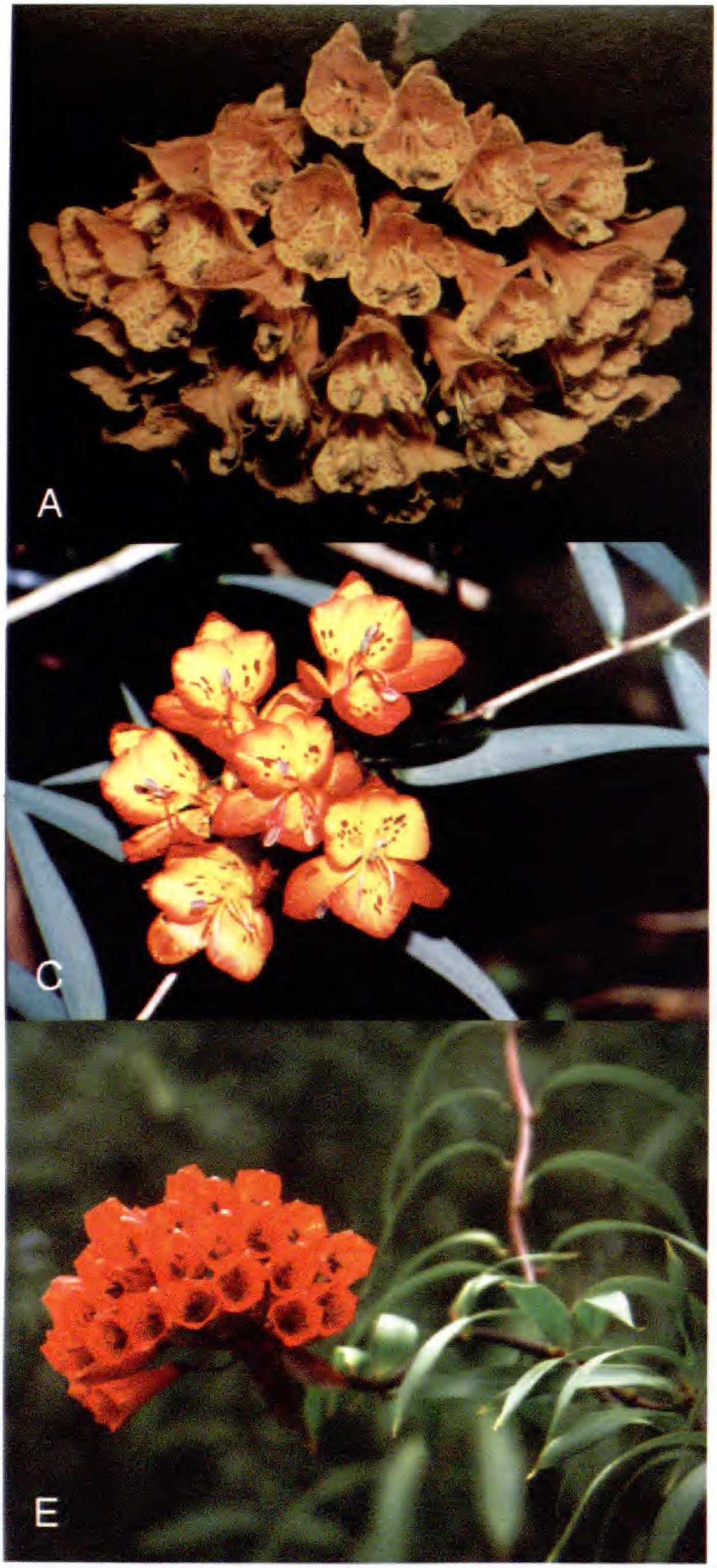


Fig. 1. ***Bomarea alstroemeroides***: **A.** Habit (size 3 cm); **B.** Distribution (=triangles); **C.** Habitat (Laguna de los Condores, Leymebamba, Amazonas).



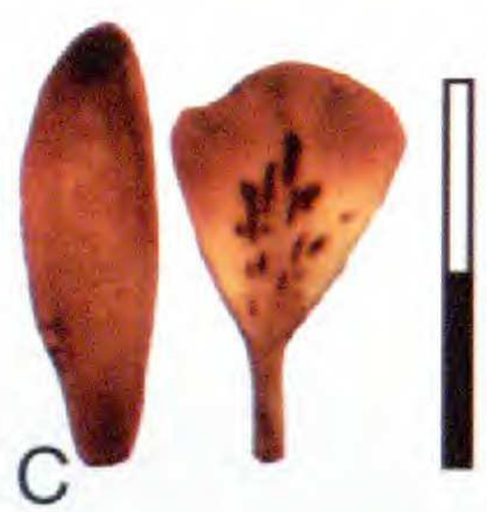


Fig. 2. ***Bomarea multiflora*: A.** Flowers; **B.** Tepals. ***B. alstroemeroides***: **C.** Flowers and tepals. ***B. formosissima:*** **D.** Tepals; **E.** Flowers. (all size 3 cm).

Etimology: The ***B. alstroemeroides*** refers to the wide, open clearly zygomorphic ***Alstroemeria***-like flowers

Acknowledgements

We thank the directors and curators of the herbaria AAU, B, BM, CUZ, E, F, G, GH, HAO, HBG, HUT, K, LP, LZ, M, MA, MO, NY, U, UC, US, USM and W. We thank H. Förther for his help with taxonomic problems, C. Köbele for assistance at computer problems, F.J. Höck for taking photos of herbarium specimens; We are grateful to H. Beltran, A. Cano, F. Careras, N. Salinas, M. I. Torres and L. Montes M. for diverse help and assistance in Peru, and to S. Beck in Bolivia. The first author is indebted to his parents for constant support and to Susanna Tausendfreund, his former employer, who accepted very flexible working times, making possible this research work.

Literature cited

Harling, G. & Neuendorf, M. 2003. Alstroemeriaceae. – Flora of Ecuador 71: 3–108.

Hofreiter, A & Tillich, H-J. 2002. The delimitation, ecology, distribution and infrageneric subdivision of ***Bomarea*** Mirbel (Alstroemeriaceae). – Feddes Repert. 113 (7 – 8): 528 –544.

Killip, E. P. 1936. ***Bomarea*** Mirb. – In: Macbride, J. F. (ed.): Flora of Peru, Part I. – Field Mus. Nat. Hist., Bot. Ser. 13: 633–665.